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10/528,641	10/27/2005	Nozomu Sahashi	38195.66	4651
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/528,641

Applicant(s)

SAHASHI, NOZOMU

Examiner

BRUK A. GEBREMICHAEL

Art Unit

3714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2008.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-60 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 43-60 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 22 March 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-8508)
Paper No(s)/Mail Date 02/11/2008
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____

DETAILED ACTION

1. The following office action is a **Final Office Action** in response to communications received on 02/11/2008. Claims 22-42 have been cancelled. Claims 43-60 have been added.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 43-48 and 51-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saruhashi 2004/0205818 in view of Bakis 6,219,639.

Regarding claims 43 and 51, Saruhashi discloses the following claimed limitations, a remote education system/method that enables education over distances using multimedia bi-directional communication including audio and video (Para.0009), comprising student audio-video acquisition means/step for acquiring audio and video of a student who is attending a remote education program via a student terminal (Para.0005, lines 6-16 and Para.0072, lines 1-6).

However, Saruhashi does not positively disclose, facial image matching means/step for matching the video acquired by the student audio-video acquisition means/step with a pre-registered facial image of the student; action request means/step for sending a message to the student terminal for requesting an audio response to a certain question; audio response detection means/step for

detecting an audio response of the student from the audio that is currently being acquired by the student audio-video acquisition means within a predetermined time after sending the message by the action request means/step, and confirming that the detected audio response of the student corresponds to the requested audio response of the student; and mouth movement detection means/step for detecting mouth movement of the student from the acquired video while the audio response is being detected by the audio response detection means/step, and confirming that the detected mouth movement of the student corresponds to the audio response of the student detected by the audio response detection means/step.

Bakis discloses a method and apparatus for recognizing and identifying individuals that teaches, facial image matching means/step for matching the video acquired by the student audio-video acquisition means/step with a pre-registered facial image of the student (col.4, lines 52-57 and col.8, lines 36-46); action request means/step for sending a message to the student terminal for requesting an audio response to a certain question (col.7, lines 1-2); audio response detection means/step for detecting an audio response of the student from the audio that is currently being acquired by the student audio-video acquisition means within a predetermined time after sending the message by the action request means/step, and confirming that the detected audio response of the student corresponds to the requested audio response of the student (FIG 2, label 202 and col.7, lines 2-8); and mouth movement detection means/step for detecting mouth movement of the student from the acquired video while the audio response is being detected by the audio

response detection means/step, and confirming that the detected mouth movement of the student corresponds to the audio response of the student detected by the audio response detection means/step (col.5, lines 62-67 and col.6, lines 1-6).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by incorporating a voice recognition unit and an image capturing unit and operatively connecting these units to a decoder that synchronizes the voice recognition function and the corresponding facial or lips movement at the same time frame (see col.9, lines 17-36) in order to positively identify whether a given speaker is a legitimate individual or not so that the system would either accept or reject that individual based on the result thereby preventing unauthorized access to the school database.

Regarding claims 44 and 52, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Bakis further teaches, the audio response detection means/step includes means/step for performing speech recognition of the detected audio response, and means/step for comparing the result of the speech recognition with the requested audio response to confirm that the audio response provided by the student corresponds to the requested audio response of the student (col.7, lines 2-8); and the mouth movement detection means/step includes means for extracting mouth shape parameters of the student by feature extraction means from the acquired video (col.7, lines 35-41), and means/step for comparing the extracted mouth shape parameters of the student with mouth shape parameters obtained from the result of the speech recognition obtained by

the audio response detection means/step to confirm that the mouth movement of the student corresponds to the audio response of the student (col.10, lines 5-20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by including a lip contour extractor and classifier unit in order to extract and classify the lip contour geometry of the individual while the individual is speaking so that these captured images would be stored for comparison purpose during a recognition session, and also by including a voice recognition unit in order to generate and store acoustic voice characteristics of individuals so that these stored data would also be used for comparison purposes during a given recognition session.

Regarding claims 45 and 53, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Saruhashi further discloses, student data registration means/step (Para.0159).

However, Saruhashi does not explicitly disclose the student data registering means/step for registering the audio response data of the student responding to a plural kinds of questions.

Bakis further teaches, a data registration means/step for registering the audio response data of the student responding to a plural kinds of questions, and mouth shape parameters detected from the acquired video response of the student therewith (col.3, lines 23-28); the action request means/step includes means for sending a message to the student terminal for requesting an audio response to a randomly selected question (col.7, lines 1-2), the audio response detection means/step includes

means for matching the detected audio response with the corresponding audio response data of the student registered by the student data registration means/step to confirm that the audio response of the student corresponds to the requested audio response of the student (col.7, lines 2-8); and the mouth movement detection means includes means/step for extracting mouth shape parameters by feature extraction means/step (col.7, lines 35-41), and means/step for matching the extracted mouth shape parameters with the corresponding mouth shape parameters of the student registered by the student data registration means to confirm that the mouth movement of the student corresponds to the audio response of the student (col.10, lines 5-10).

Therefore, here also for the same reason stated above, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by including a lip contour extractor and classifier unit in order to extract and classify the lip contour geometry of the individual while the individual is speaking so that these captured images would be stored for comparison purpose during a recognition session, and also by including a voice recognition unit in order to generate and store acoustic voice characteristics of individuals so that these stored data would also be used for comparison purposes during a given recognition session.

With regard to the limitation, and an audio response provided by the student in response to the randomly selected question is registered by the student data registration means/step; since Bakis's invention clearly teaches that the voice response

of the individual is compared to a pre-stored voice data, it would have be obvious to one of ordinary skill in the art at the time of the invention was made to recognize the fact that during the comparison session, the collected voice response is first registered in the memory of the system before the comparison phase takes place and therefore, Bakis's invention teaches this limitation also.

Regarding claims 46 and 54, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Saruhashi further discloses, student data registration means/step (Para.0159).

However, Saruhashi does not explicitly disclose the student data registering means/step for registering the audio response data and video response data of the student responding to a plural kinds of questions.

Bakis further teaches, a data registration means/step for registering audio response data and video response data of the student responding to a plural kinds of questions (col.3, lines 23-28); the action request means/step includes means/step for sending a message to the student terminal for requesting an audio response to a randomly selected question (col.7, lines 1-2); the audio response detection means includes means/step for matching the detected audio response with the corresponding audio response data of the student registered by the student data registration means/step to confirm that the audio response of the student corresponds to the requested audio response of the student (col.7, lines 2-8); and the mouth movement detection means/step includes means/step for matching the acquired video of the student with the corresponding video response data of the student registered by the

student data registration means/step to confirm the mouth movement of the student corresponds to the audio response of the student (see col.5, lines 62-67 and col.6, lines 1-6).

Therefore, here also it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by incorporating a voice recognition unit and an image capturing unit and operatively connecting these units to a decoder that synchronizes the voice recognition function and the corresponding facial or lips movement at the same time frame (see col.9, lines 17-36) in order to positively identify whether a given speaker is a legitimate individual or not so that the system would either accept or reject that individual based on the result thereby preventing unauthorized access to the school database.

With regard to the limitation, audio response data and video response data provided by the student is registered by the student data registration means/step, since Bakis's invention teaches that the voice and image or video response of the individual is compared to a pre-stored voice and image or video data, it would have be obvious to one of ordinary skill in the art at the time of the invention was made to recognize the fact that during the comparison session, the collected audio and video responses are first registered in the memory of the system before the comparison phase takes place and therefore, Bakis's invention teaches this limitation also.

Regarding claims 47 and 55, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Bakis further teaches, means/step for detecting the position of the face of the student continuously from the video that is currently being acquired by the student audio-video acquisition means/step; and means/step for confirming that the detected position of the face does not change in a discontinuous manner (col.10, lines 15-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by incorporating a speaker recognition unit that operatively combine a voice recognition unit and an image recognition unit in order to detect and prevent unauthorized access to a restricted database by an imposter utilizing a recorded video of a legitimate individual.

Regarding claims 48 and 56, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Bakis further teaches, the action request means includes means for sending the message to the student terminal at unpredictable times (col.7, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by implementing a random question generator that sends a random question to the individual from the set of pre-stored questions in order to prevent an imposter from providing a recorded version of a legitimate person's answers, since the imposter does not know which of the questions would be asked from the given set of pre-stored questions during the recognition session, thereby preventing identity fraud.

Regarding claim 57, Saruhashi in view of Bakis teaches the claimed limitations as discussed above.

Bakis further teaches, a computer readable medium having computer executable instructions for performing the attendance confirmation method according to claim 51 (col.6, lines 29-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by incorporating a memory for storing the software program used in the speaker recognition routine in order to allow a given administrator to easily transfer and implement this computer program on any machine that incorporates the necessary input and out puts units regardless of the location of such machine.

- Claims 49-50 and 58-60 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saruhashi 2004/0205818 in view of Bakis 6,219,639 and further in view of Sukegawa 2003/0039380.

Regarding claims 49 and 58, Saruhashi discloses the following claimed limitations, a remote education system/method that enables education over distances using multimedia bi-directional communication including audio and video (Para.0009), comprising student video acquisition means/step for acquiring video of a student via a student terminal (Para.0005, lines 6-16 and Para.0072, lines 1-6).

However, Saruhashi does not disclose, facial image matching means/step for matching the video acquired by the student video acquisition means/step with a pre-registered facial image of the student; action request means/step for sending a message to the student terminal for requesting the student to change the position of the face to a randomly selected position; and facial position detection means/step for

detecting the position of the face continuously from the video that is currently being acquired by the student video acquisition means/step, and confirming that the detected position of the face does not change in a discontinuous manner and moves to the corresponding position requested by the action request means within a predetermined time after sending the message by the action request means/step.

Bakis teaches, facial image matching means/step for matching the video acquired by the student video acquisition means/step with a pre-registered facial image of the student (col.4, lines 52-57 and col.8, lines 36-46), action request means/step for sending a message to the student terminal (col.7, lines 1-2), facial position detection means/step for detecting the position of the face continuously from the video that is currently being acquired by the student video acquisition means/step, and confirming that the detected position of the face does not change in a discontinuous manner (col.10, lines 15-21).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis by incorporating a speaker recognition unit that operatively combine a voice recognition unit and an image recognition unit in order to detect and prevent unauthorized access to a restricted database by an imposter utilizing a recorded video of a legitimate individual.

Even if, it is implicitly taught, Saruhashi in view of Bakis does not explicitly teach, the action request means/step for sending a message to the student terminal for requesting the student to change the position of the face to a randomly selected position; and the face moves to the corresponding position requested by the action

request means within a predetermined time after sending the message by the action request means/step.

Sukegawa discloses a person recognition apparatus that teaches, an action request means/step for sending a message to the student terminal for requesting the student to change the position of the face to a randomly selected position (Para.0252); and the face moves to the corresponding position requested by the action request means within a predetermined time after sending the message by the action request means/step (Para.0254 and Para.0255).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis and further in view of Sukegawa by configuring the system to include a request to the individual to move the position of his/her head based on the relative angle to the image capturing unit in order to allow the system to fully capture the required facial features of the person and also at the same time to check if the person actually complies with the request thereby confirming whether the individual is a recorded image or not.

Regarding claims 50 and 59, Saruhashi in view of Bakis and further in view of Sukegawa teaches the claimed limitations as discussed above.

Bakis further teaches, the action request means/step includes means for sending the message to the student terminal at unpredictable times (col.7, lines 1-2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis and further in view of Sukegawa by implementing a random question generator that

sends a random question to the individual (as taught by Bakis) from the set of pre-stored questions in order to prevent an imposter from providing a recorded version of a legitimate person's answers, since the imposter does not know which of the questions would be asked from the given set of pre-stored questions during the recognition session, thereby preventing identity fraud.

Regarding claim 60, Saruhashi in view of Bakis and further in view of Sukegawa teaches the claimed limitations as discussed above.

Bakis further teaches, a computer readable medium having computer executable instructions for performing the attendance confirmation method according to Claim 58 (col.6, lines 29-34).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the invention of Saruhashi in view of Bakis and further in view of Sukegawa by incorporating a memory for storing the software program used in the speaker recognition routine in order to allow a given administrator to easily transfer and implement this computer program on any machine that incorporates the necessary input and out puts units regardless of the location of such machine.

Response to Arguments.

3. Applicant's arguments filed on 02/11/2008 have been fully considered but they are not persuasive. In the remarks, Applicant argues that,

(1) With respect to canceled Claims 22 and 24, which recited the feature of "a function for detecting movement of the mouth of the student accompanying the audio

response by the student", the Examiner alleged that Saruhashi et al. teaches "a means for asking the student a question and requesting an audio response and a means for acquiring audio of the student (Para.0069, lines 3-17 and Para.0072, lines 1-6);" that Sukegawa et al. teaches "facial image matching means for matching the video acquired by the student video acquisition means with a pre-registered facial image of the student (Para.0156 and 0157), a means for requesting the student to perform an action to change an appearance of the body of the student (Para.0254 and 0255), and a detection means for detecting image changes of the student corresponding to the action requested based on the video of the student acquired by the student video acquisition means (Para.0252 and FIG.51, label 107);" that Sukegawa et al. further teaches "a means for detecting movement of the mouth of the student (Para.0187, Para.0192 and FIG.21);" and Hong et al. teaches "a detection means including a means for recognizing the audio response from the acquired audio (Para.0007) and a means for determining the validity of the audio response of the student (Para.0009 and Para.0010)."

However, Saruhashi et al (Para.0069, lines 3-17 and Para.0072, lines 1-6) merely discloses a means for acquiring a video from a TV camera and an audio from a microphone for bidirectional communication between the student terminals and the instructor terminal; Sukegawa et al. (Para.0187, Para.0192 and FIG.21) merely discloses a face detector for detecting relative positions of a face and face parts including the mouth in order to detect a face movement in response to a request action; and Hong merely discloses a voice registration method and a voice recognition method.

The only cited prior art reference which teaches anything at all about detecting

movement of a mouth is Sukegawa et al. Neither Sukegawa et al. nor any of the other cited prior art references teach or suggest any relationship or interaction whatsoever between the detected movement of a mouth and an audio response of a student. Thus, the cited prior art references certainly fail to teach or suggest the features of "mouth movement detection means for detecting mouth movement of the student from the acquired video while the audio response is being detected by the audio response detection means, and confirming that the detected mouth movement of the student corresponds to the audio response of the student detected by the audio response detection means" as recited in Applicant's Claim 43, and similarly in Applicant's Claim 51.

(2) With respect to canceled Claim 28, which recited the feature of "a function for determining that the facial image of the student does not move in a discontinuous manner," the Examiner alleged Sukegawa et al. teaches "action detection means including a means for determining that the facial image of the student does not move in a discontinuous manner (Para. 0019, lines 12-16)."

However, contrary to the Examiner's allegations, paragraph [0019] of Sukegawa et al. merely discloses a determination unit which continuously inputs an image by the image input unit and determines whether a person to be authenticated exists on the basis of a change with time in the region of the face detected by the face detector.

Neither Sukegawa et al. nor any of the other cited prior art references teach or suggest anything at all about discontinuous face changes which would be caused by switching of a video to a prerecorded video. Thus, the cited prior art references certainly

fail to teach or suggest the features of "facial position detection means for detecting the position of the face continuously from the video that is currently being acquired by the student video acquisition means, and confirming that the detected position of the face does not change in a discontinuous manner and moves to the corresponding position requested by the action request means within a predetermined time after sending the message by the action request means" as recited in Applicant's Claim 49, and similarly in Applicant's Claim 58.

Accordingly, Applicant respectfully submits that none of the cited prior art references teaches or suggests the unique combination and arrangement of features and/or method steps recited in Applicant's Claims 43, 49, 51, and 58

In view of the foregoing amendments and remarks, Applicant respectfully submits that Claim 43, 49, 51, and 58 are allowable. Claims 44-48, 50, 52-57, 59, and 60 depend upon Claims 43, 49, 51, and 58, and are therefore allowable for at least the reasons that Claims 43, 49, 51, and 58 are allowable.

- In response to argument (1), the Examiner respectfully disagrees. For instance, based on a broad interpretation of the claims, the Saruhashi reference discloses the claimed feature, *a means for asking the student a question and requesting an audio response and a means for acquiring audio of the student*.

For example the line, "Each of the instructor terminals 30 includes a TV camera and a microphone for capturing the picture and voice of an instructor, and a computer having an interface function for the TV camera and microphone and a network connection function. The instructor terminals 30 have the function of transmitting the

pictures and voices captured by the TV cameras and microphones...." (Para.0069, lines 6-9) does teach the claimed feature, *a means for asking the student a question and requesting an audio response*, since the instructor uses the microphone to ask the student a question during the video conference.

Similarly, the line "...student terminals, or user terminals used by students, each includes a TV camera and a microphone for capturing the picture and voice of the student, and a personal computer having an interface function for the TV camera and microphone and an Internet connection function." (Para.0072, lines 1-6) teaches the claimed feature, *a means for acquiring audio of the student*, since here also, the microphone on the student terminal is used to capture (acquire) the audio response of the student.

Therefore, it is clear from these two paragraphs that the Saruhashi reference does teach the above claimed feature.

Even if the Applicant further indicated that none of the references teach or suggest any relationship or interaction between the detected movement of a mouth and an audio response of a student, the Sukegawa reference implicitly suggests such relationship (Para.0094).

However, the claimed feature, *mouth movement detection means for detecting mouth movement of the student from the acquired video while the audio response is being detected by the audio response detection means, and confirming that the detected mouth movement of the student corresponds to the audio response of the student detected by the audio response detection means*, (claims 43 and 51), is old

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and well known in the art. For example, as already indicated in the above section (*Claim Rejections - 35 USC § 103*), Bakis's invention (US 6,219,639) teaches this claimed feature.

The line "In a preferred embodiment, systems and methods are provided which permit confirmation that indeed the **utterance** provided to the **speaker recognition system** matches the **behavior of the lips of the speaker** and further, that the speaker's lip shape matches a previously extracted and stored lip shape of the speaker on file. Thus, individuals actually speaking the words provided to the speaker recognition system may be discerned from individuals merely utilizing voice recordings, as well as individuals able to proficiently synchronize their lip movements with a pre-recorded voice (i.e., lip syncing)." (col.5, lines 62-67 and col.6, lines 1-6), teaches the relationship or interaction between the detected movement of a mouth and an audio response of a student.

Therefore, the examiner maintains that the above claimed features would have been obvious to one of ordinary skill in the art at the time of the invention was made as already taught and suggested by the prior arts.

In response to Argument (2), the Examiner respectfully disagrees. Here also, by taking the broad interpretation of the claimed feature, *action detection means including a means for determining that the facial image of the student does not move in a discontinuous manner*, Sukegawa's invention clearly teaches a determination unit that checks for any change in the region of the face of a given person to be authenticated. For example the line "a determination unit which continuously inputs an image by the

image input unit, and determines whether a person to be authenticated exists on the basis of a change with time in the region of the face detected by the face detector,” (Para.0019, lines 12-16) teaches the above claimed limitation that the determination unit represents the means for determining whether the facial image of the student (person) does not move in a discontinuous manner (on the basis of a change with time).

With regard to the Applicant’s argument, the discontinuous face changes which would be caused by switching of a video to a prerecorded video, the above claim does not distinctly indicate the claimed limitation as such.

Conclusion

Applicant’s amendment necessitated the new grounds of rejection presented in this final office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filled within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Bruk A. Gebremichael whose telephone number is (571)270-3079. The examiner can normally be reached on Monday to Friday (7:30AM-5:00PM) ALT. Friday OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, THAI XUAN can be reached on (571) 272-7147. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Bruk A Gebremichael/
Examiner, Art Unit 3714
/XUAN M. THAI/
Supervisory Patent Examiner, Art Unit 3714